NEW CHAPTER 5 INSERT

This insert replaces Chapter 5 in the published manual.

CHAPTER 5

Jumper Settings and Connectors

This chapter tells how to set up the panel PC hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators. Be sure to read all the safety precautions before you begin the installation procedures.

- Jumpers and Connectors
- CPU Installation and Upgrading
- COM Port Interface
- VGA Interface
- Watchdog Timer Configuration

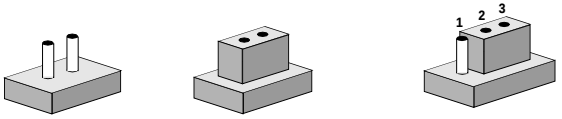
NEW CHAPTER 5 INSERT

This insert replaces Chapter 5 in the published manual.

5.1 Jumpers and Connectors

5.1.1 Setting jumpers

You can configure your panel PC to match the needs of your application by setting jumpers. A jumper is the simplest kind of electrical switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper, you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either pins 1 and 2 or pins 2 and 3.



Open Closed Closed 2 - 3

The jumper settings are schematically depicted in this manual as follows:

Open Closed Closed 2 - 3

A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

5.1.2 Jumpers

The motherboard of the panel PC has a number of jumpers that allow you to configure your system to suit your applications. The table below lists the function of each of the board's jumpers.

Table 5-1: Jumpers and their functions

Label	Function
JP1	COM3 RI pin setting (Reserved)
JP2	COM4 RI pin setting (Reserved)
JP3	COM2 RS-232/422/485 setting
JP4	COM2 RS-232/422/485 setting
JP5	COM2 RS-232/422/485 setting
JP6	Panel V_{CC} setting
JP7	ENVEE pin setting
JP8	PCI bus clock setting
JP9	Panel type select
JP10	Cyrix linear mode enable
JP11	System/PCI clock setting
JP12	CMOS clear for external RTC
JP13	CPU V_{CORE} voltage setting
JP14	CPU frequency ratio setting
JP15	Watchdog timer action
JP16	Reset
JP17	CMOS clear for 5582 internal RTC (Reserved)
JP18	AT/ATX power select (Reserved)

5.1.3 Locating jumpers

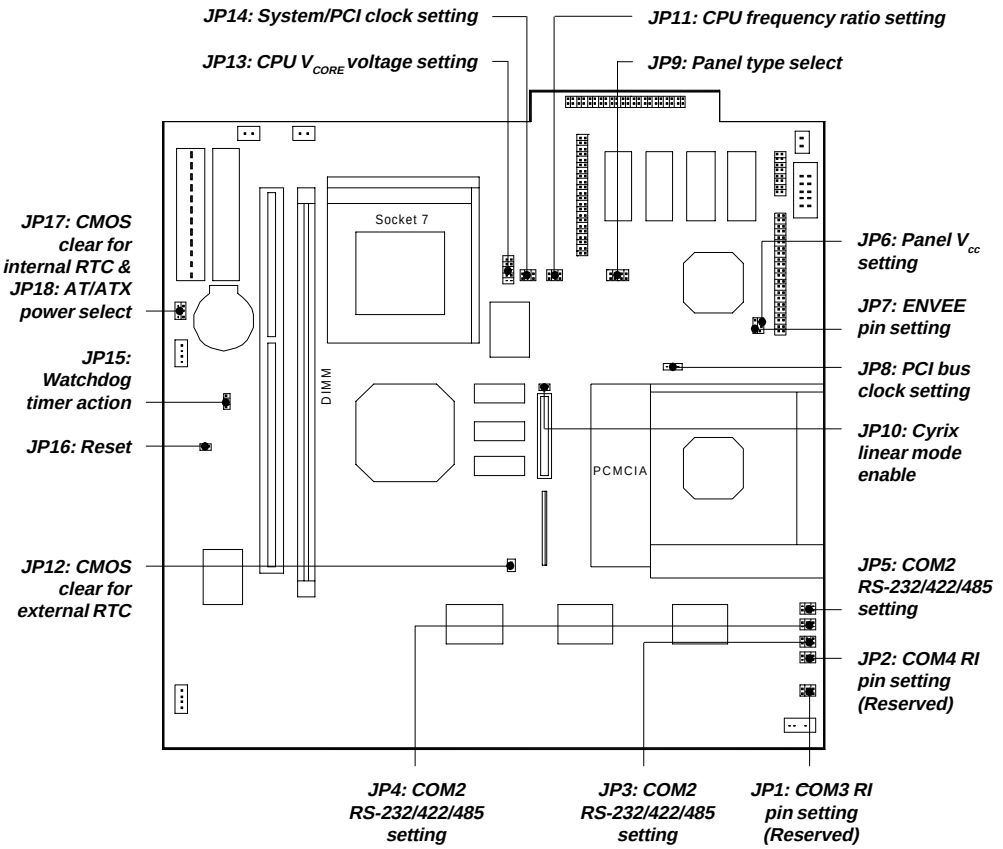

JP14: System/PCI clock setting
JP11: CPU frequency ratio setting
JP13: CPU V CORE voltage setting
JP9: Panel type select
JP17: CMOS clear for internal RTC & JP18: AT/ATX power select
JP15: Watchdog timer action
JP16: Reset
JP12: CMOS clear for external RTC
JP6: Panel V cc setting
JP7: ENVEE pin setting
JP8: PCI bus clock setting
JP10: Cyrix linear mode enable
JP5: COM2 RS-232/422/485 setting
JP2: COM4 RI pin setting (Reserved)
JP4: COM2 RS-232/422/485 setting
JP3: COM2 RS-232/422/485 setting
JP1: COM3 RI pin setting (Reserved)
Socket 7
DIMM
PCMCIA

Figure 5-1: Locating jumpers on the PPC-120/140 motherboard

5.1.4 Connectors

On-board connectors link the panel PC to external devices such as hard disk drives or floppy drives. The table below lists the function of each of the board's connectors.

Table 5-2: Panel PC connectors

Label	Function
J1	IR connector
J2	Flat panel display connector
J3	Flat panel display connector
J4	Internal COM4 connector
J5	Touchscreen power connector
J6	Sandisk SSD connector
J7	EIDE hard disk driver connector
J8	Floppy drive connector
J9	CD-ROM connector
J10	CPU fan power connector
J11	PCI/ISA bus expansion connector
J12	Fan power connector
J13	AT power connector
J14	ATX power connector (Reserved)
J15	Internal speaker connector
J16	Inverter power connector

5.1.5 Locating connectors

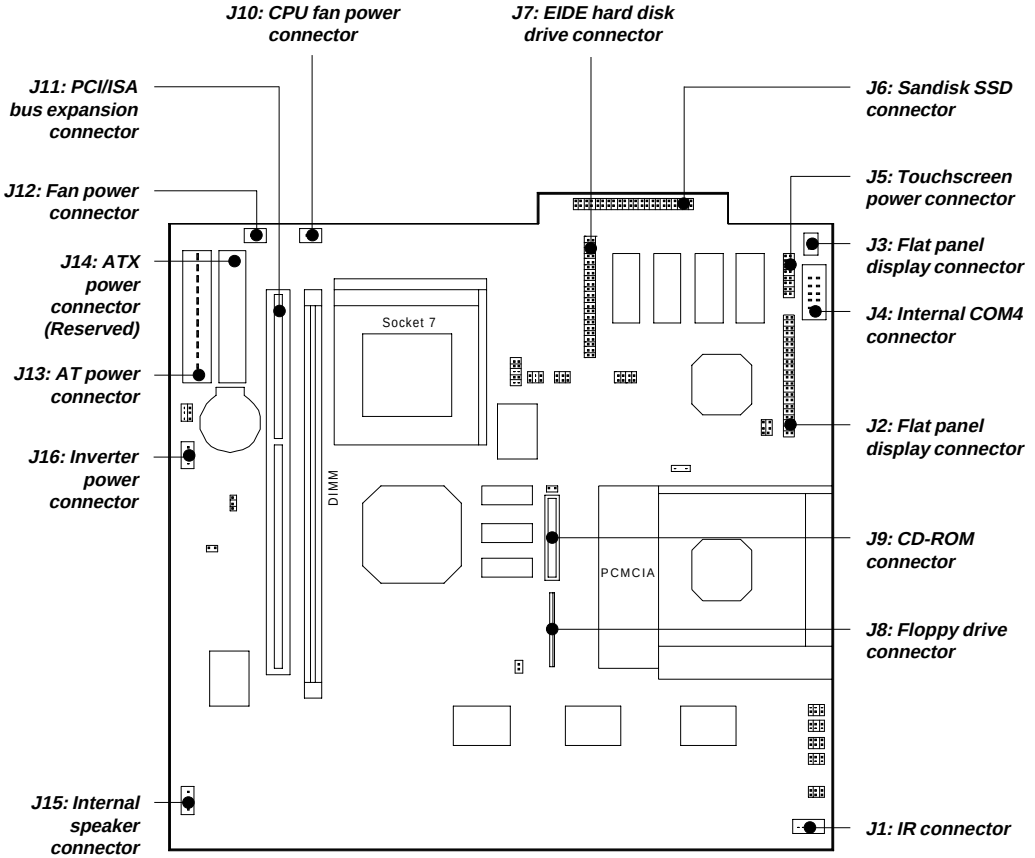


Figure 5-2: Locating connectors on the PPC-120/140 motherboard

5.2 CPU Installation and Upgrading

You can upgrade to a higher power Pentium®, AMD or Cyrix processor at any time. Simply remove the old CPU, install the new one, and set the jumpers for the new CPU type and speed.

5.2.1 System clock setting (JP11, JP8)

JP11 and JP8 are used to set the CPU and PCI bus speeds respectively, to optimize the system's performance. The system chipset will sense the JP8 setting to get the bus frequency, then adjust its internal timing. JP11 is used to set the CPU and PCI clock. Refer to the CPU speed reference table for instructions on adjusting the internal clocks according to the base CPU speed.

Table 5-3: System/PCI clock setting (JP11)

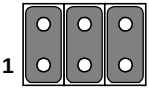
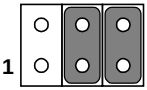
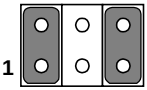
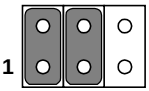
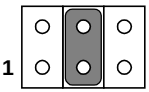
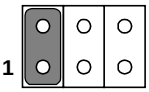
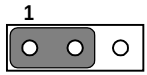
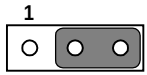
PCI clock	CPU clock	
25 MHz	50 MHz	
30 MHz	60 MHz	
33 MHz	66 MHz	
28 MHz	55 MHz	
38 MHz	75 MHz	
42 MHz	83 MHz	
(Reserved)		

Table 5-4: PCI bus clock setting (JP8)

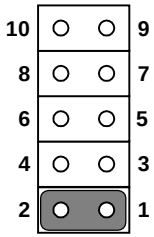
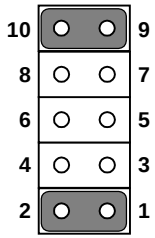
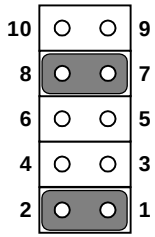
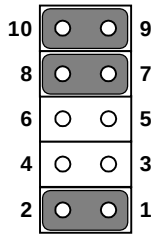
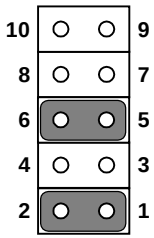
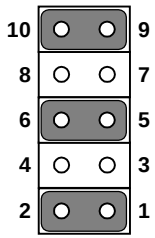
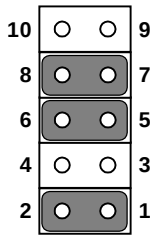
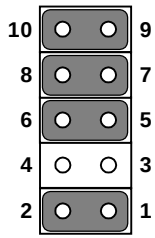
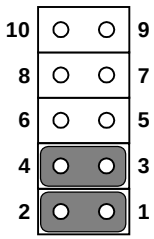
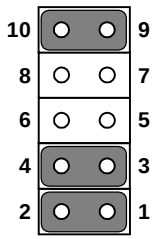
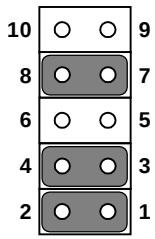
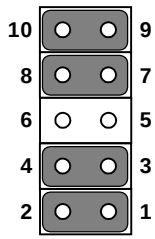
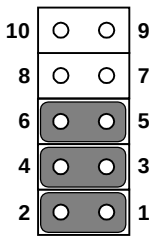
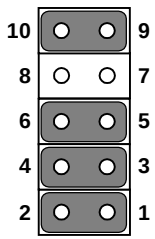
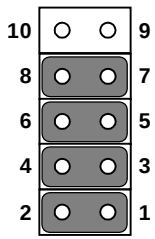
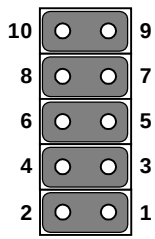
PCI clock
* CPUCLK/2 
32MHz 

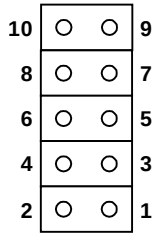
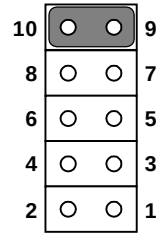
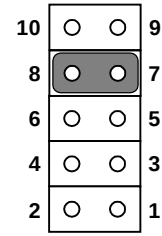
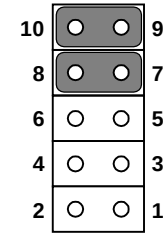
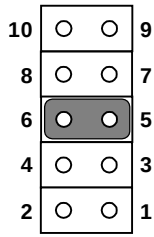
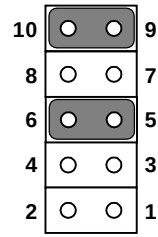
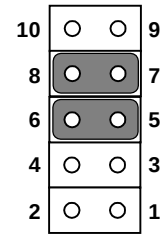
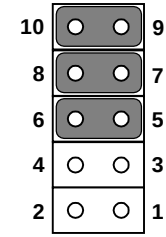
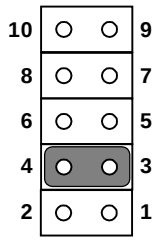
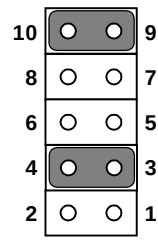
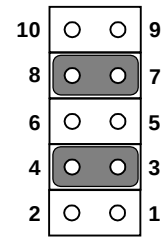
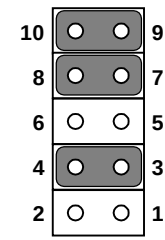
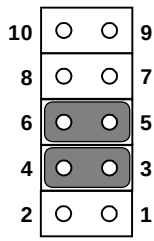
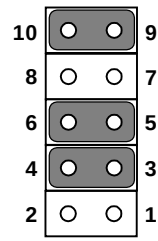
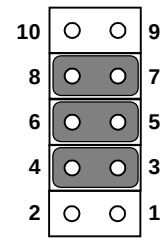
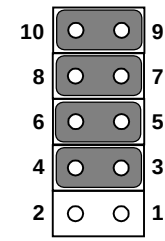
* default setting

5.2.2 CPU core voltage setting (JP13)

JP13 must be set to match the CPU type. The chart below shows the proper jumper settings for their respective $V_{cc\ (core)}$. (The $V_{cc\ (I/O)}$ for the CPU is fixed at 3.3 V.)

Table 5-5: CPU voltage setting (JP13)

$V_{CC\ (CORE)}$ 1.30 V	$V_{CC\ (CORE)}$ 1.35 V	$V_{CC\ (CORE)}$ 1.40 V	$V_{CC\ (CORE)}$ 1.45 V
			
1.50 V	1.55 V	1.60 V	1.65 V
			
1.70 V	1.75 V	1.80 V	1.85 V
			
1.90 V	1.95 V	2.00 V	2.05 V
			

$V_{CC\ (CORE)}$	$V_{CC\ (CORE)}$	$V_{CC\ (CORE)}$	$V_{CC\ (CORE)}$
NONE	2.10 V	2.20 V	2.30 V
			
2.40 V	2.50 V	2.60 V	2.70 V
			
2.80 V	2.90 V	3.00 V	3.10 V
			
3.20 V	3.30 V	3.40 V	3.50 V
			

5.2.3 CPU frequency ratio setting (JP14)

Table 5-6: CPU frequency ratio (for Intel) (JP14)

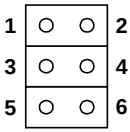
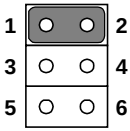
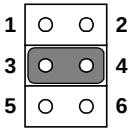
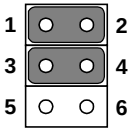
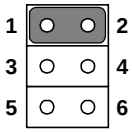
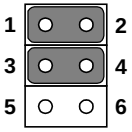
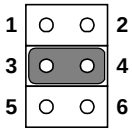
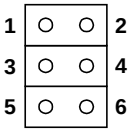
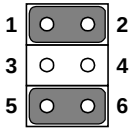
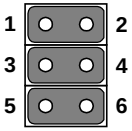
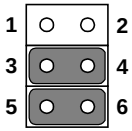
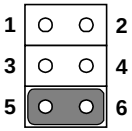
P55C	P54C	
3.5x	1.5x	
2x	2x	
3x	3x	
2.5x	2.5x	

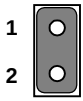
Table 5-7: CPU frequency ratio (for AMD K6) (JP14)

2x 	2.5x 
3x 	3.5x 
4x 	4.5x 
5x 	5.5x 

5.2.4 CMOS clear for external RTC (JP12)

Warning: *To avoid damaging the computer, always turn off the power supply before setting "Clear CMOS". Set the jumper back to "3.0 V Battery On" before turning on the power supply.*

Table 5-8: Clear CMOS/External RTC (JP12)

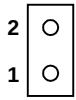
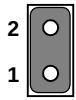
* normal operation	
Clear CMOS	

* default setting

5.2.5 Cyrix linear mode enable (JP10)

The panel PC supports Cyrix M1 CPU with its linear access mode on L2 cache. This mode is set through JP10.

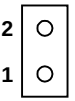
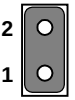
Table 5-9: Cyrix linear mode enable (JP10)

* open = disable (normal operation)	
closed = Cyrix linear mode	

* default setting

5.2.6 Reset system (JP16)

Table 5-10: Reset system (JP16)

* open = normal operation	
closed = reset system	

* default setting

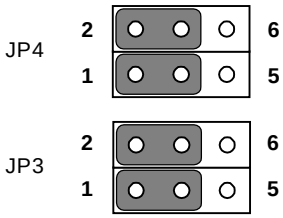
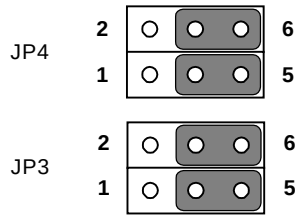
5.3 COM-port Interface

The panel PC provides four serial ports (COM1, 3, 4: RS-232; COM2: RS-232/422/485) in one COM port connector.

5.3.1 COM2 RS-232/422/485 setting (JP3, JP4, JP5)

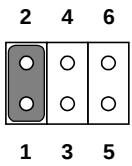
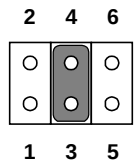
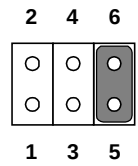
COM2 can be configured to operate in RS-232, RS-422, or RS-485 mode. This is done via JP6 and JP5.

Table 5-11: COM2 RS-232/422/485 setting (JP3, JP4)

* RS-232	RS-422/485
	

* default setting

Table 5-12: COM2 RS-232/422/485 setting (JP5)

* RS-232	RS-422	RS-485
		

* default setting

The IRQ and the address ranges for COM1, 2, 3, and 4 are fixed. However, if you wish to disable the port or change these parameters later you can do this in the system BIOS setup. The table overleaf shows the default settings for the panel PC's serial ports.

COM1 and COM2 are one set. You can exchange the address range and interrupt IRQ of COM1 for the address range and interrupt IRQ of COM2. After exchanging, COM1's address range is 2F8 ~ 2FF and its request IRQ is IRQ3: and COM2's address range is 3F8 ~ 3FF and its interrupt IRQ is IRQ4.

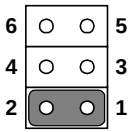
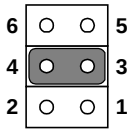
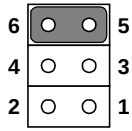
COM3 and COM4 are another set. Their selectable function is the same as the COM1/COM2 set.

Table 5-13: PPC-120/140 serial port default settings

Port	Address Range	Interrupt
COM1	3F8 ~ 3FF	IRQ4
COM2	2F8 ~ 2FF	IRQ3
COM3	3E8 ~ 3EF	IRQ10
COM4	2E8 ~ 2EF	IRQ5

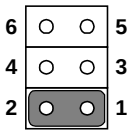
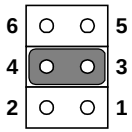
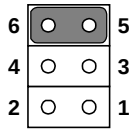
5.3.2 COM3/COM4/RI pin setting (JP2, JP1) (Reserved)

Table 5-14: COM4/RI pin setting (JP2)

+5 V output	+12 V output	* RI output
		

* default setting

Table 5-15: COM3/RI pin setting (JP1)

+5 V output	+12 V output	* RI output
		

* default setting

5.4 VGA Interface

The panel PC's's PCI SVGA interface can drive conventional CRT displays and is capable of driving a wide range of flat panel displays, including electroluminescent (EL), gas plasma, passive LCD and active LCD displays. The board has two connectors to support these displays simultaneously; one for standard CRT VGA monitors and one for flat panel displays.

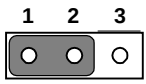
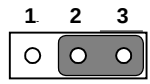
CRT display port information can be found in Section 3.9 - VGA Port.

The pin assignments for the flat panel display connector, backlight connector and other related connectors are described in the appendices.

5.4.1 LCD panel V_{CC} power setting (JP6)

The panel PC's's PCI SVGA interface supports 5 V and 3.3 V LCD displays. By changing the setting of JP6, you can select the panel video signal level to be 5 V or 3.3 V.

Table 5-16: LCD panel V_{CC} power setting (JP6)

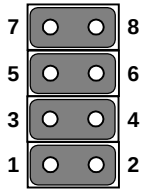
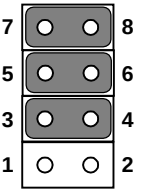
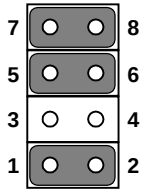
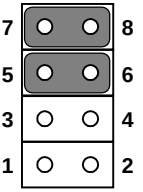
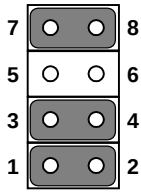
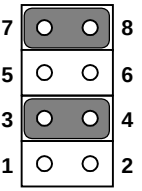
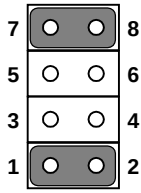
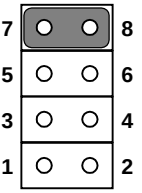
* 5 V	3.3 V
	

* default setting

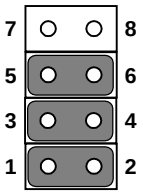
Configuration of the VGA interface is done exclusively via the software utility. You do not have to set any jumpers. Refer to Chapter 8 for software setup details.

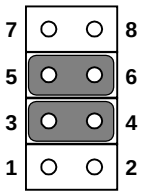
5.4.2 Panel type select (JP9)

Table 5-17: Panel type select (JP9)

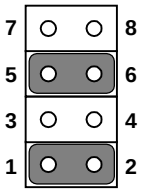
	Maximum Resolution	Display Type		Maximum Resolution	Display Type
1.	1024 x 768	DSTN color	2.	1280 x 1024	TFT color
					
3.	640 x 480	DSTN color	4.	800 x 600	DSTN color
					
5.	640 x 480	SHARP TFT color	6.	640 x 480	18-bit TFT color
					
7.	1024 x 768	TFT color	8.	800 x 600	TFT color
					

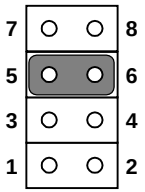
Maximum Resolution	Display Type	Maximum Resolution	Display Type
9. 800 x 600	TFT color (44 K BIOS only)	10. 800 x 600	TFT color



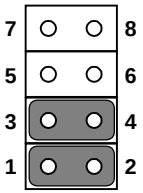


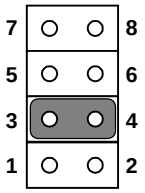
11. 800 x 600	DSTN color (44 K BIOS only)	12. 800 x 600	DSTN color



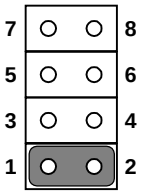


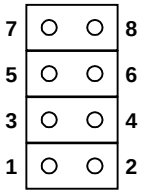
13.1024 x 768	TFT color (44 K BIOS only)	14. 1280 x 1024	DSTN color (44 K BIOS only)





15. 1024 x 600	TFT color (48•K BIOS only)	16. 1024 x 600	TFT color





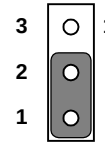
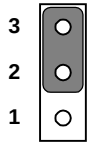
5.5 Watchdog Timer Configuration

An on-board watchdog timer reduces the chance of disruptions which EMP (electromagnetic pulse) interference can cause. This is an invaluable protective device for standalone or unmanned applications. Setup involves one jumper and running the control software. (Refer to Appendix B.)

5.5.1 Watchdog activity selection (JP15)

When the watchdog timer activates (i.e. CPU processing has come to a halt), it can reset the system or generate an interrupt on IRQ11. This can be set via jumper JP15 as shown below:

Table 5-18: Watchdog activity selection (JP15)

* System reset	IRQ11
	

* default setting